Leo (Hongchi) Liu

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EDUCATION

Stanford University M.S. in Mechanical Engineering
Fluid Mechanics & Heat Transfer Concentration (GPA 3.65) Expected Mar. 2026

University of California, Los Angeles B.S. in Mechanical Engineering
Cum Laude (GPA 3.88), College Honors, Dean's List, Jane and Tien-Tsai Yang Centennial Scholar Jun. 2024

RESEARCH

Stanford NanoHeat Laboratory Apr. 2025–Present
Graduate Research Assistant *Stanford, CA*

- Optimize silicon pool boiling setups with porous media for enhanced phase-change heat transfer & reliability.
- Conducted HBM (High Bandwidth Memory) BEOL thermal conduction design and analysis in Fluent & Icepak.
- Developed automated MATLAB-PyAEDT design workflow, shortened BEOL modelling turnaround by ~90%.
- Performed IR microscope thermal conductivity tests on TIM and silicon substrates, under ASTM D5470-17.

Publications

H. Liu, K. Jiang, et al., "Pool boiling performance and reliability tests of gold- and copper-plated nickel microporous structures on silicon substrates," presented at IEEE ITherm, submitted for publication.

H. Liu, D. Kong, et al., "Pool and capillary-based boiling heat transfer enhancement with microporous copper inverse opals using Novec 649," presented at IEEE ITherm, submitted for publication.

Y. Lin, **H. Liu**, et al., "The package-level conjugate thermal-flow simulation for a memory-on-logic 3D systems with embedded liquid-cooling solutions," presented at IEEE ECTC, submitted for publication.

UCLA Complex Fluids and Interfacial Physics Laboratory Aug. 2022–June 2024
Undergrad Research Assistant *Los Angeles, CA*

- Developed high-temp energy modules' thermal model in StarCCM+ for material and design optimization.
- Designed and conducted supercritical water desalinization tests on 5 oil industry water sample batches.
- Performed Inductively Coupled Plasma Mass Spectrometry on water samples, reported with correlations.

PROFESSIONAL

Rivian Automotive Jun. 2024–Sep. 2024
Battery Module Design & Analysis Intern *Tustin, CA*

- Built the first VOF potting flow model in StarCCM+ with high-fidelity dispense path and mass analysis.
- Eliminated battery potting CAE dependency on supplier, reduced design analysis timeline to ¼ of previous.
- Designed module busbar fuse's thermal model and provided CAE analysis within 2 hours of each new DOE.

Tesla, Inc. Jun. 2023–Sep. 2023
Battery Design Engineering Intern, Semi *Reno, NV*

- Redesigned Semi HV battery cooling system dielectric with projected appx. 50% per week OpEx reduction.
- Designed two adhesive-free module mount interfaces with estimated $26M combined OpEx & CapEx savings.
- Streamlined PPR sample build with NPI & manufacturing teams to weld CCA with 22% build time reduction.

Precision Dynamics Corporation Jun. 2022–Sep. 2022
Product Development R&D, Mechanical Engineering Intern *Valencia, CA*

- Designed 2nd-gen clasps on SnugFit® bands ($3M annual sales) with GD&T, delivered 13% material savings.
- Owned pull-force, accelerated aging, and abrasion tests on wristband prototypes, presented 4 test reports.
- Solved 3 injection molding tooling DFMA issues through collaboration with the Tijuana manufacturing team.

SKILLS

- Ansys Fluent, IcePak (Classic & AEDT), StarCCM+, Abaqus | SolidWorks, CATIA 3DX | MATLAB, Python, C.
- GD&T ASME Y14.5 | DFM/DFA | LabVIEW | IR Microscope & Camera | Integrated Circuit Fabrication, SEM.
- Lathe, Mill | CNC | SLS, SLA, FDM | UV Laser Cut | TIG weld | Injection Molding, Stamping | Automotive Repairs.